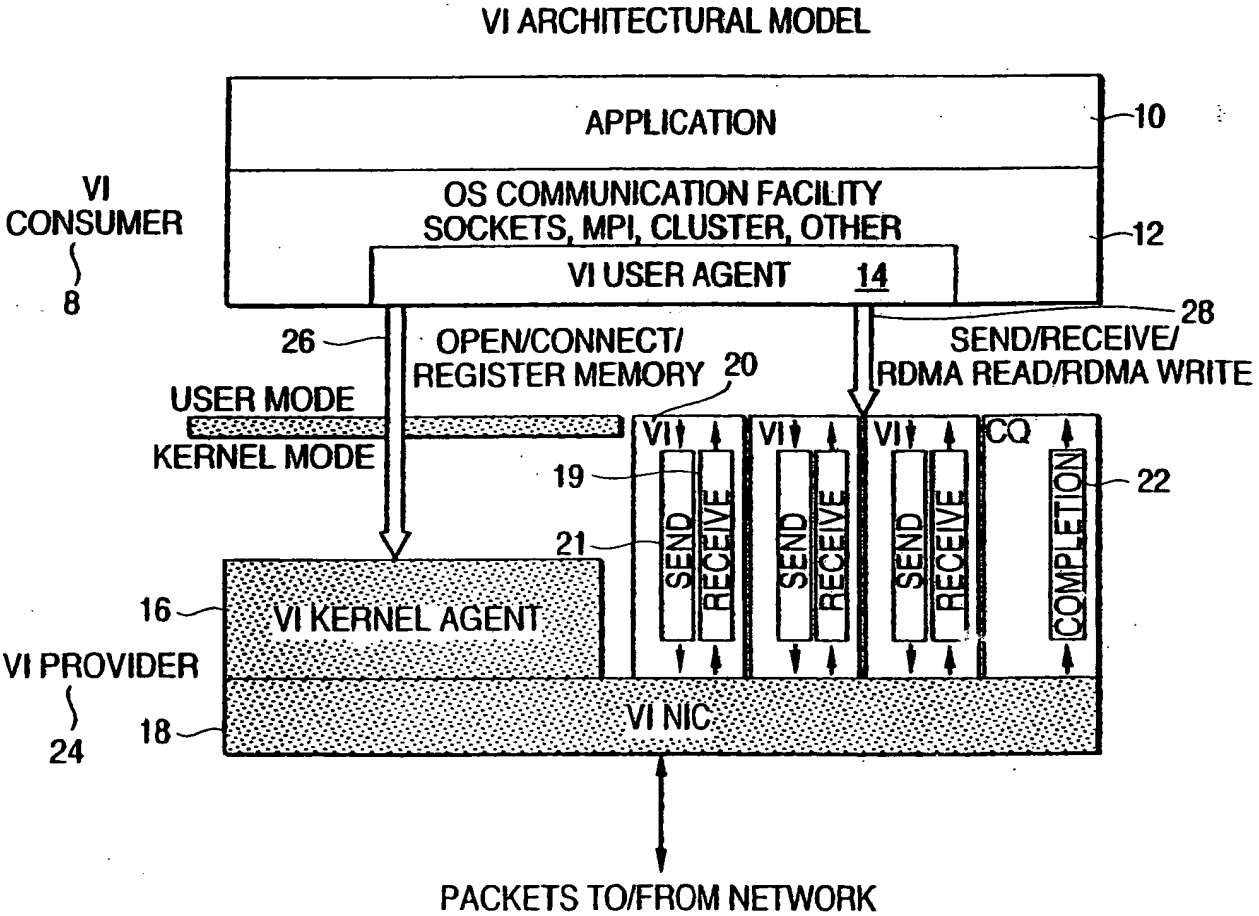
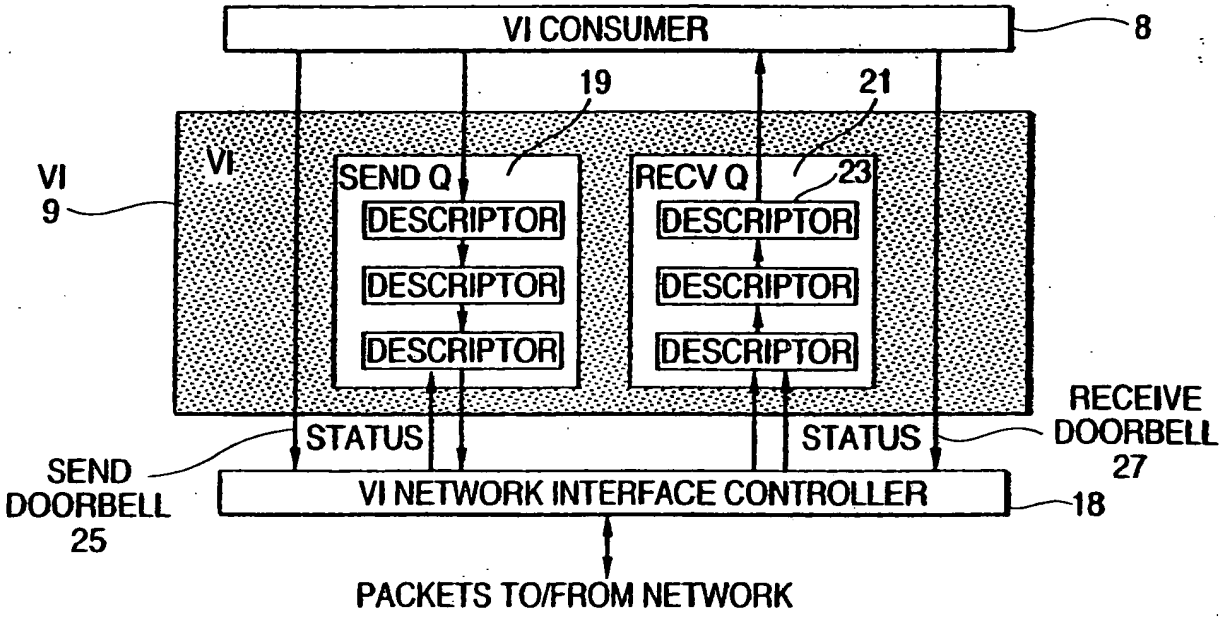
FIG. 1A


VI ARCHITECTURAL MODEL
APPLICATION
10
VI CONSUMER
8
OS COMMUNICATION FACILITY
SOCKETS, MPI, CLUSTER, OTHER
12
VI USER AGENT 14
26
OPEN/CONNECT/
REGISTER MEMORY
20
28
SEND/RECEIVE/
RDMA READ/RDMA WRITE
USER MODE
KERNEL MODE
VI
VI
VI
CQ
19
22
SEND
RECEIVE
SEND
RECEIVE
SEND
RECEIVE
COMPLETION
21
16
VI KERNEL AGENT
VI PROVIDER
24
18
VI NIC
PACKETS TO/FROM NETWORK

09/504,362 02/15/2000

FIG. 1B



DRAFT 6250260

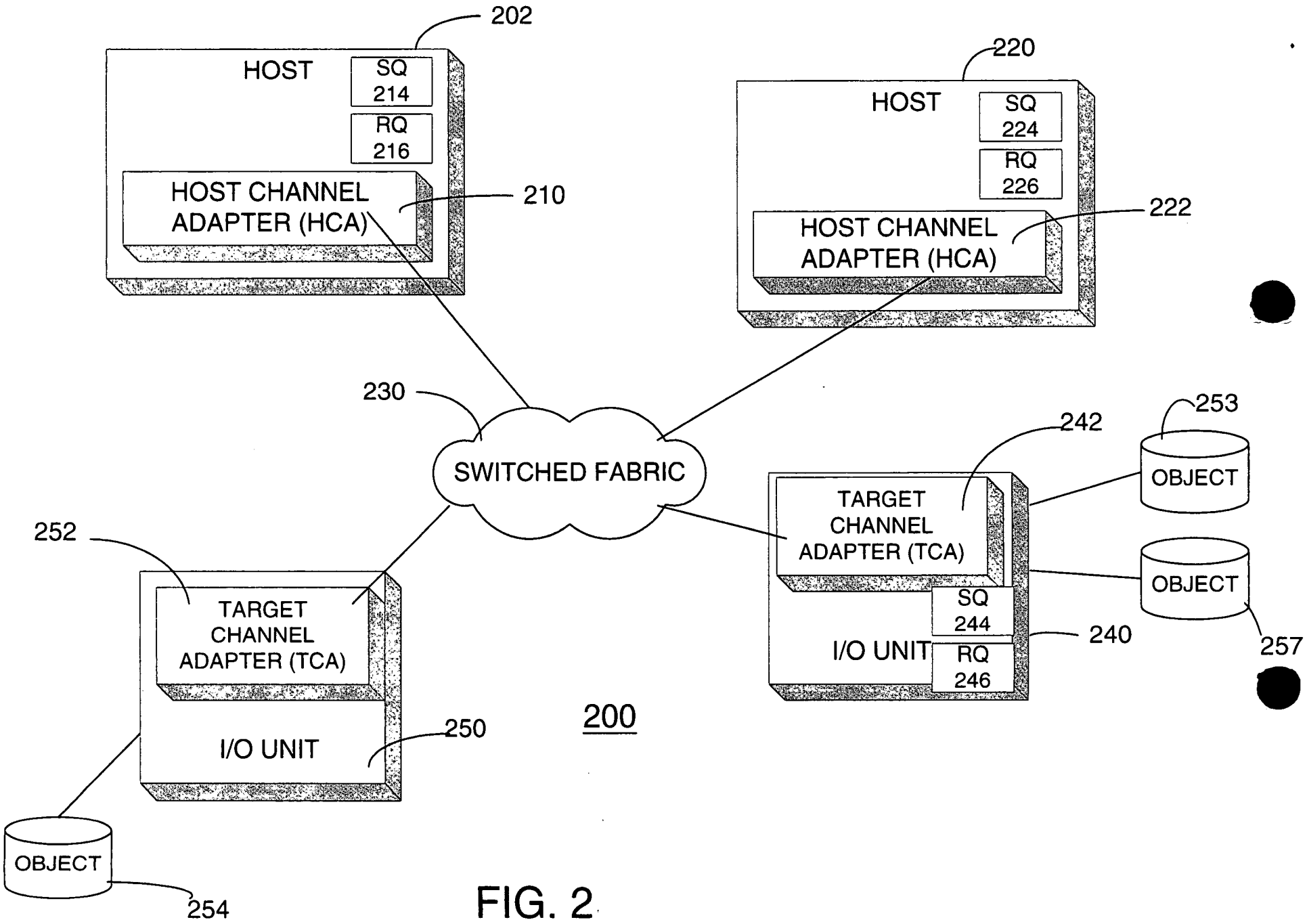


FIG. 2

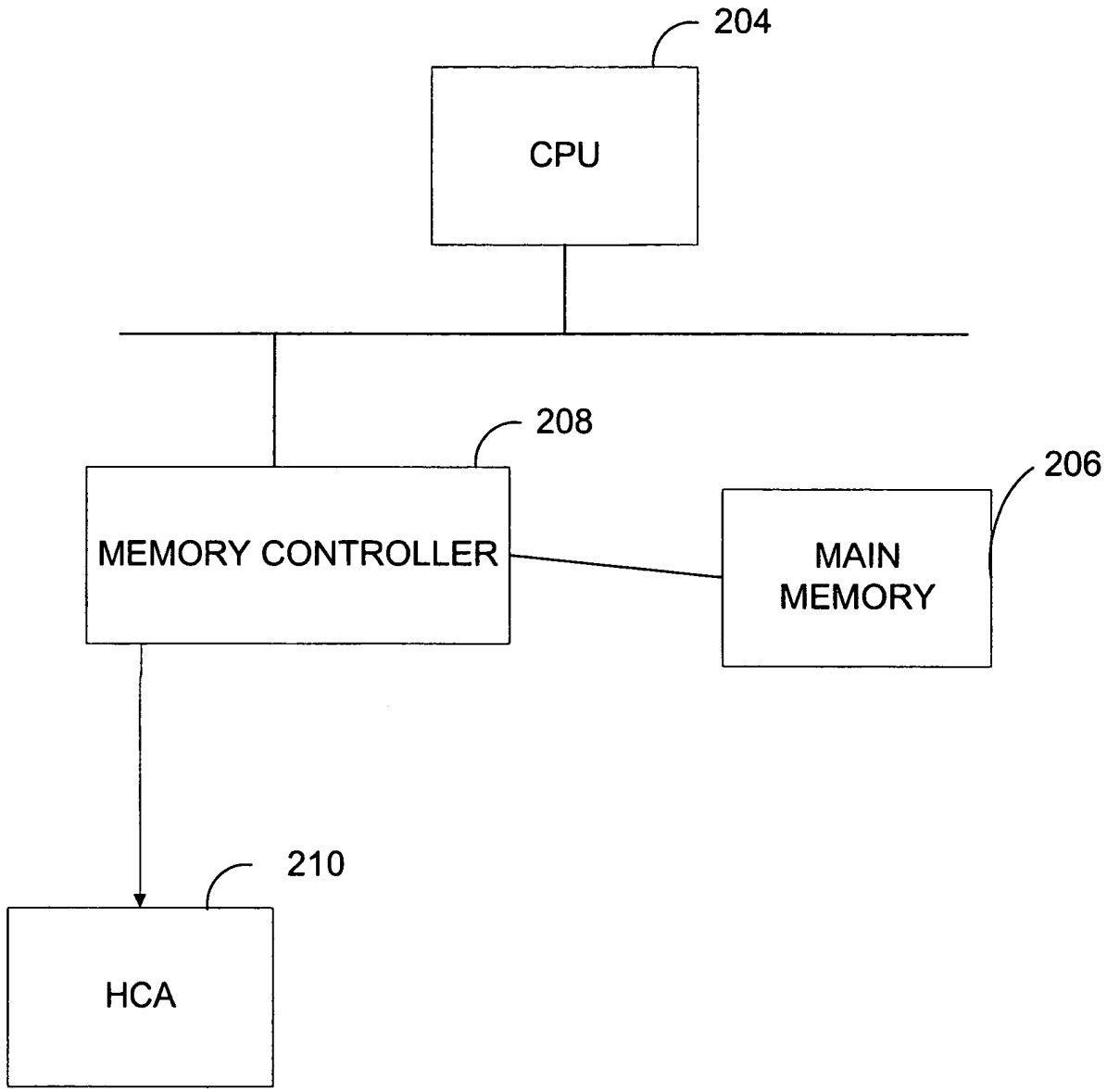
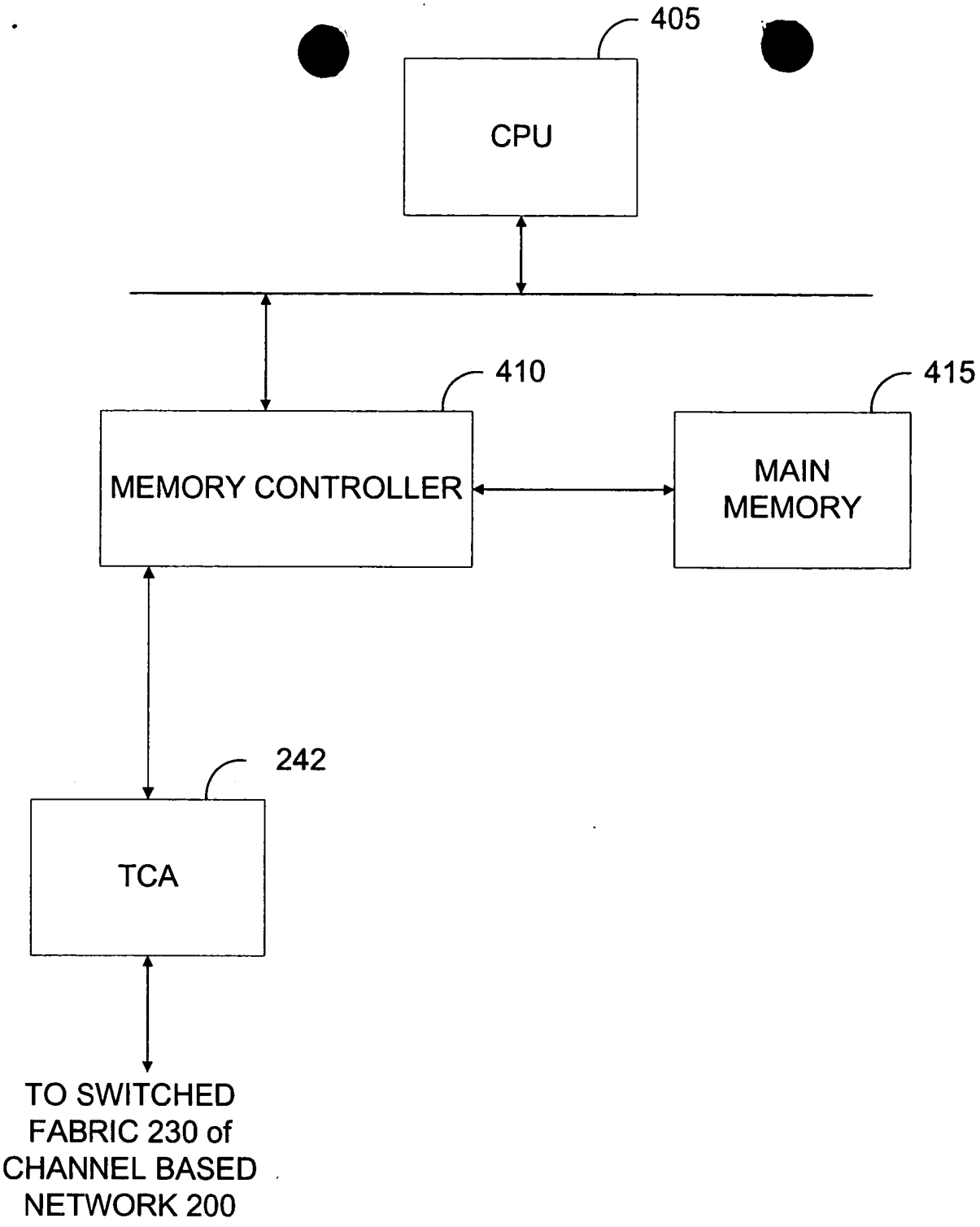

204
CPU
208
MEMORY CONTROLLER
206
MAIN MEMORY
210
HCA
HOST 202

FIG. 3



I/O UNIT 240

FIG. 4

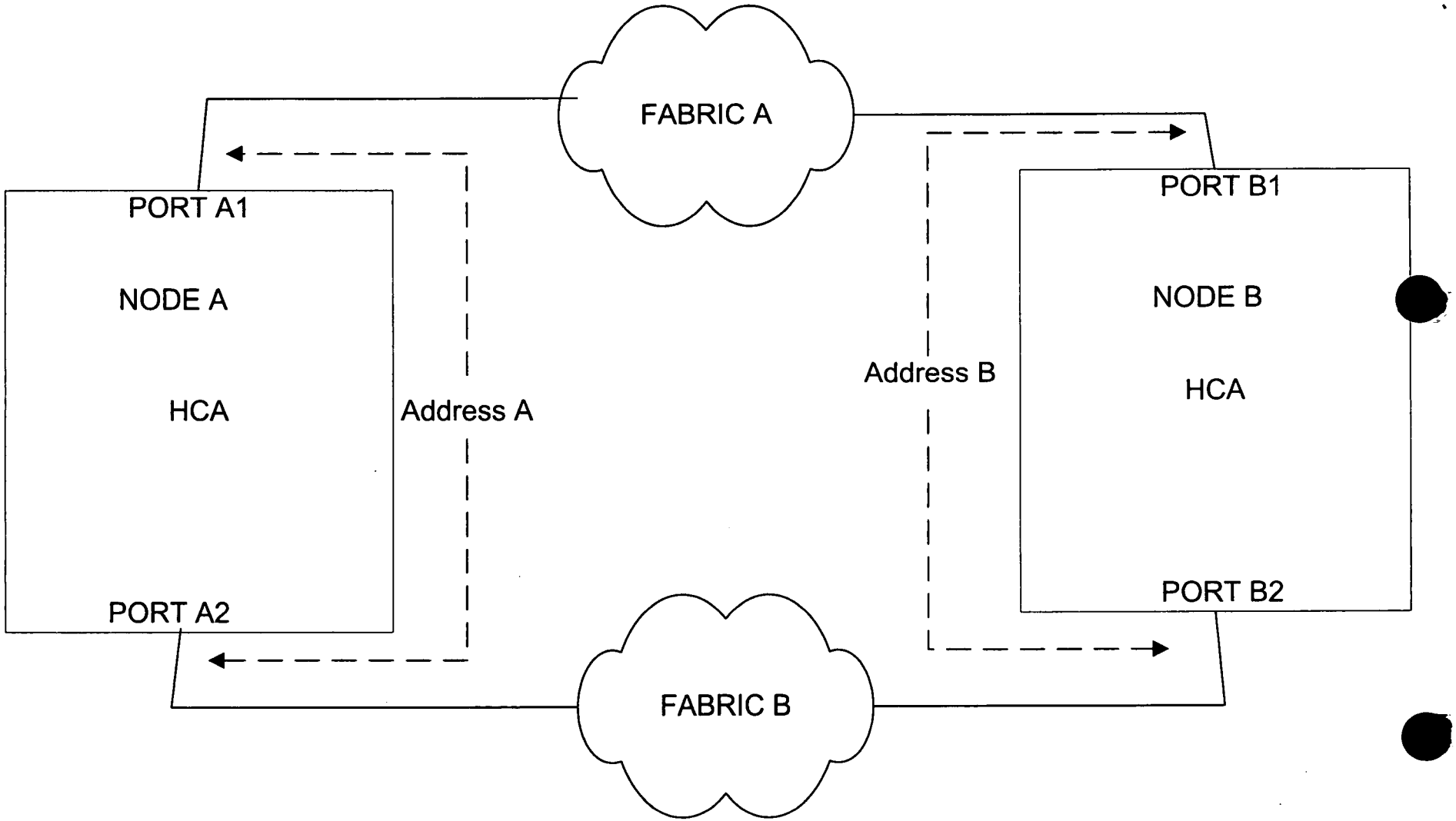

FABRIC A
PORT A1
NODE A
HCA
Address A
PORT A2
Address B
PORT B1
NODE B
HCA
PORT B2
FABRIC B

Fig. 5

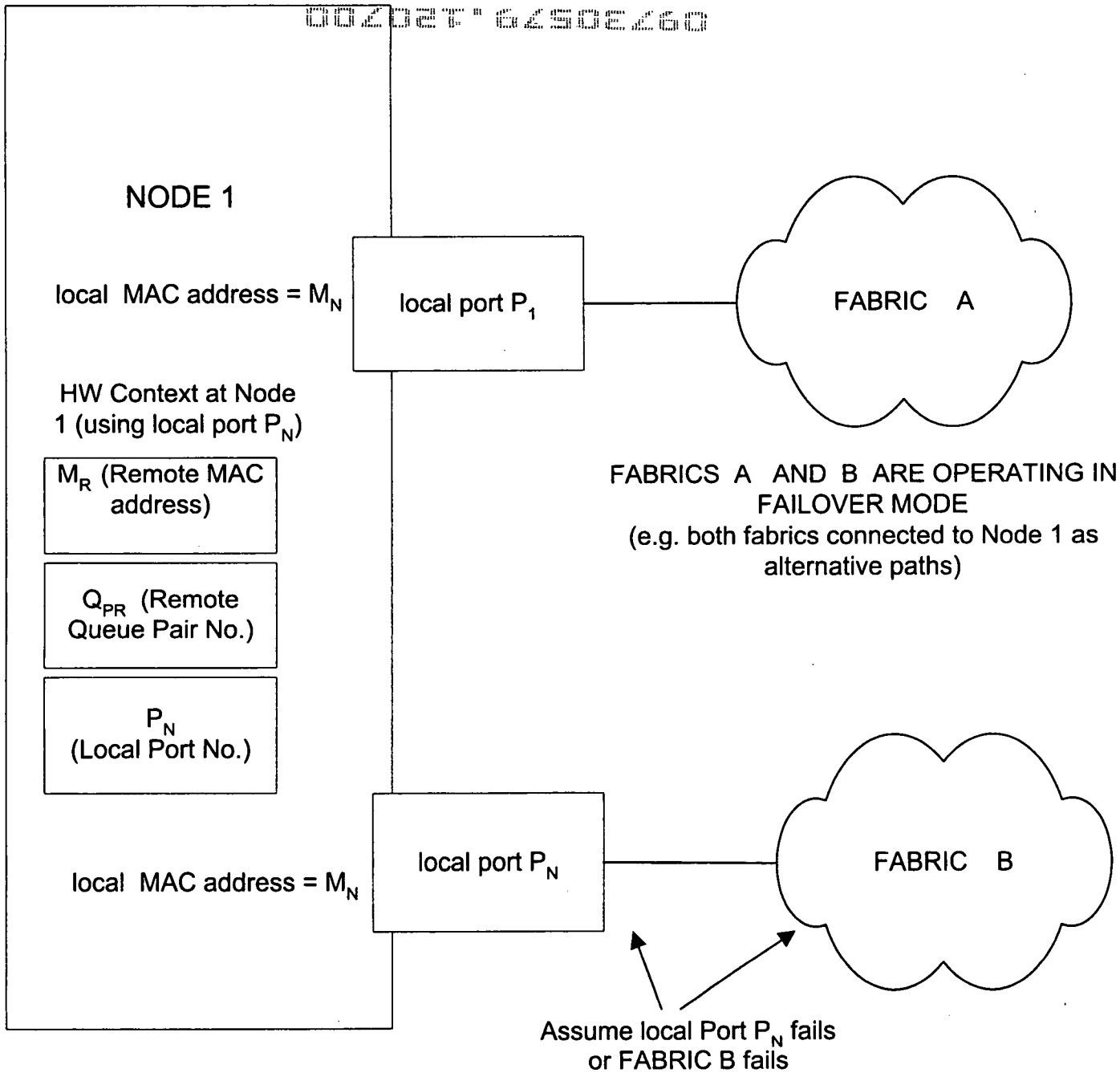

NODE 1
local MAC address = M_N
local port P_1
FABRIC A
HW Context at Node 1 (using local port P_N)
M_R (Remote MAC address)
Q_{PR} (Remote Queue Pair No.)
P_N (Local Port No.)
FABRICS A AND B ARE OPERATING IN FAILOVER MODE
(e.g. both fabrics connected to Node 1 as alternative paths)
local MAC address = M_N
local port P_N
FABRIC B
Assume local Port P_N fails or FABRIC B fails

Fig. 6

VIRTUAL-TO-PHYSICAL PORT MAP

VIRTUAL PORT	PHYSICAL PORT
VP1	PP6
VP2	PP1
VP3	PP7
VP4	PP4
VP5	PP2
VP6	PP3
VPN	PPN

700

FIG. 7

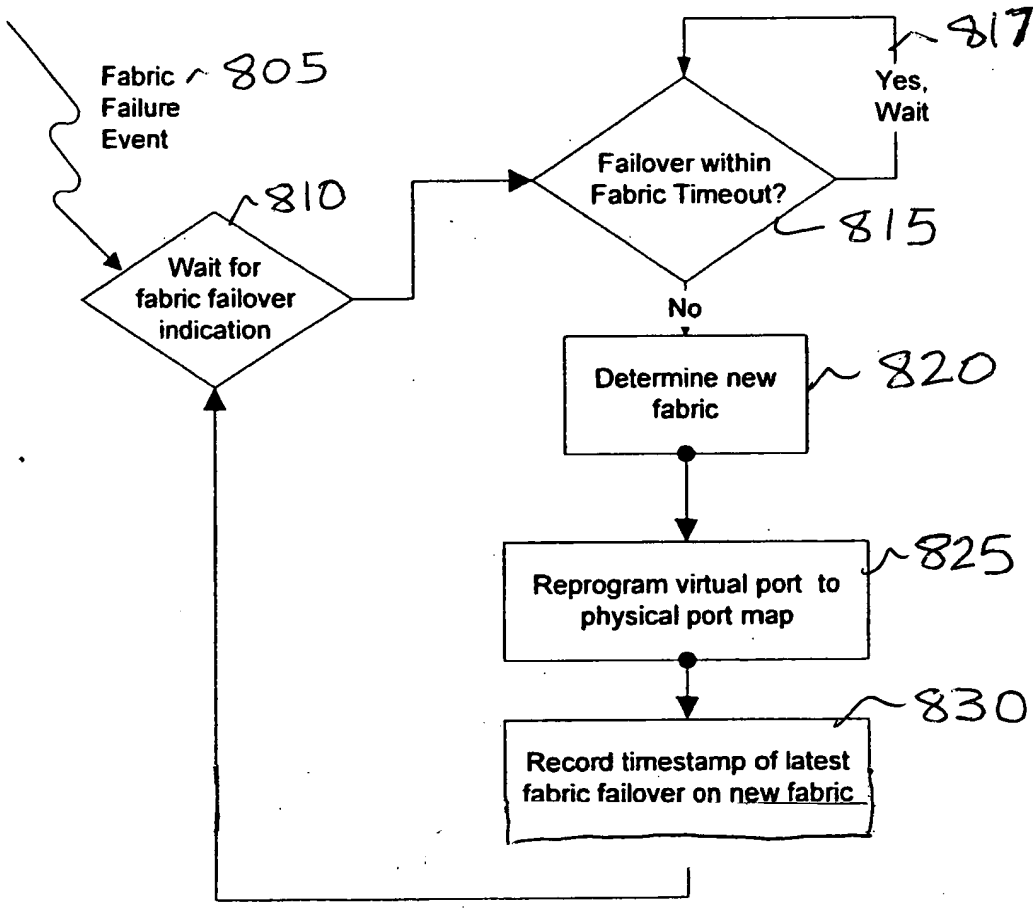

Fabric Failure Event
805
Wait for fabric failover indication
810
Failover within Fabric Timeout?
815
Yes, Wait
817
No
Determine new fabric
820
Reprogram virtual port to physical port map
825
Record timestamp of latest fabric failover on new fabric
830

Fig. 8

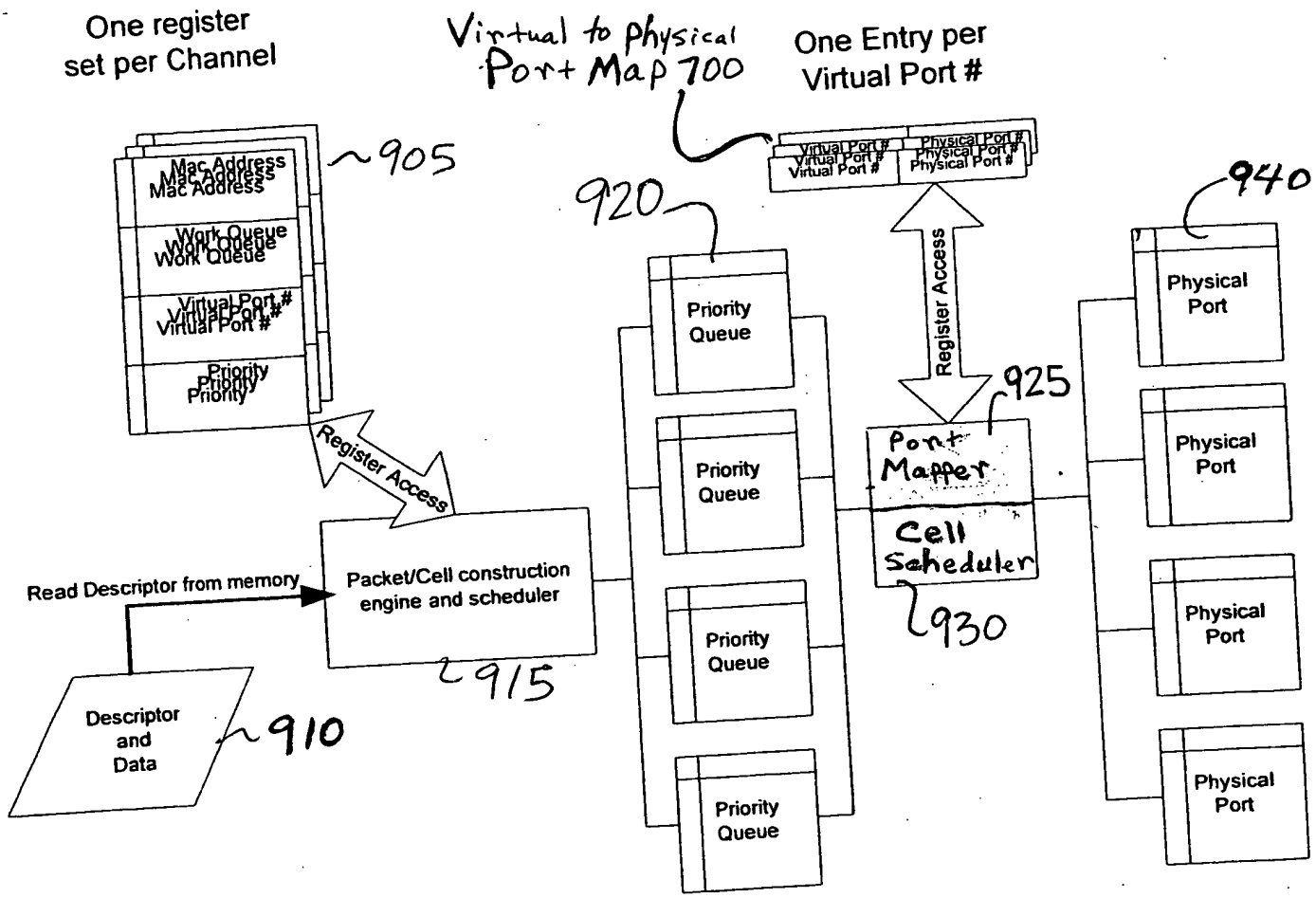

One register set per Channel
Virtual to physical Port Map 700
One Entry per Virtual Port #
Mac Address
Work Queue
Virtual Port #
Priority
905
Physical Port #
920
940
Priority Queue
Register Access
925
Port Mapper
Cell Scheduler
930
Physical Port
Read Descriptor from memory
Packet/Cell construction engine and scheduler
915
Descriptor and Data
910

Fig. 9